

A Grower's Guide to **GINSENG** *(Panax quinquefolium L)*

\$10.00

by Robert Eidus

American Ginseng (*Panax quinquefolium* L) is a perennial herb native to North America. It is a shade-loving, herbaceous plant, native to hard wood forests and best suited to cool, temperate climates. Its fleshy root and short stem are perennial; the stem and leaves die in winter, growing back again come spring.

In North Carolina, Ginseng grows naturally in the western mountains and foothills. North Carolina, and more specifically, Madison County, has a reputation for growing some of the most potent American Ginseng in the world.

First discovered in China around 5,000 years ago, *Panax Ginseng* has a long history in traditional Chinese medicine.

Its American cousin was used by Native Americans from Georgia to Quebec. Generally, it is the root that is used; the leaves are used for tea, and the berry pulp can be eaten in the fall.

American Ginseng is used to maintain good health, increases resistance (boosts immune system functions), and improves both physical and mental performance.

Ginseng is a unique plant that contains



ginsenicides, which provide both long- and short-term energy to all of the bodily systems, promote regeneration from stress and fatigue, and rebuild foundational strength. Additionally, germanium, a potent adaptogen (located in the rootlets), detoxifies and blocks free radicals.¹

Wild American Ginseng is so sought after that much of it has disappeared due to over-harvesting and loss of habitat; populations have drastically decreased (while demand remains). Large quantities of dried Ginseng root have been harvested and sold since the

eighteenth century, with prices fluctuating greatly from year to year. In 1955, Ginseng was selling for \$55/lb. Today, prices vary from hundreds of dollars to as much as \$1,000 per pound.

Annual exports of American Ginseng roots, both wild and cultivated, are worth over one hundred million dollars. 96% of all Ginseng in the world is sent to Hong Kong every year. Because of cultivation practices, unregulated imports of Ginseng products are laden with fungicidal residues.

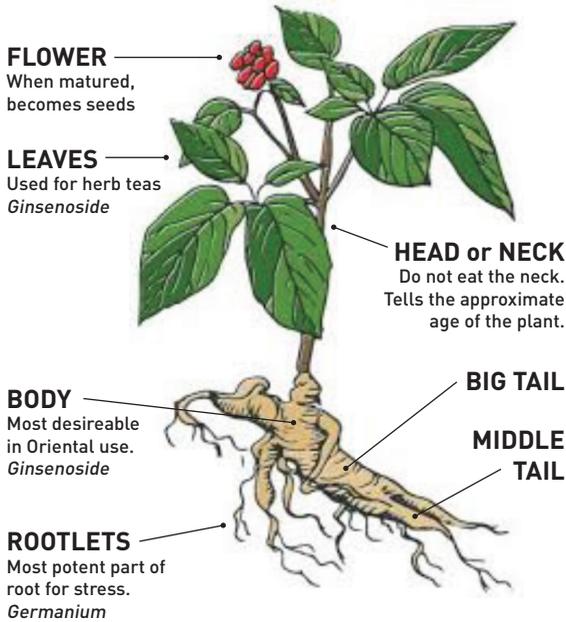
Ironically, the products with fungicidal residues are sold in our health food stores!

PLANT DESCRIPTION

Ginseng is a herbaceous perennial that today seldom grows taller than two feet and dies back every fall. In colonial times Ginseng grew hip high and covered the forest like a weed. It has one central stem from which two or more stems emerge. Each stem has a palmate cluster of five leaflets, though in its early growth stage it can be two or three leaflets.

First year plants are only about 2 inches tall and have 1 leaf (prong) with 3 leaflets. Second and third year plants have 2 prongs, each with 5 leaflets. The 2 leaflets at the prong base are smaller than the other 3 leaflets.

Ginseng Plant Details



Plants 4 years to 40 years are 12 – 14 inches tall and have 3 to 5 prongs with 5 leaflets. Older plants may have up to 7 prongs, each with 5 leaflets.

Ginseng cannot reproduce until it is 3 or 4 years old. At that time, growing from the center of the whorl of leaves is a cluster of tiny yellow-green flowers that will bloom in May or June, followed by a clump

of green berries, which hold the seeds. These berries, which will turn a bright shiny red between August and October, normally contain two seeds each.

The leaves and stems die each fall, leaving a scar where the stem is attached to the root. This is how the age of a root can be determined. One stem, that will grow the following season, forms on the side of the root.

As mentioned, the root of the plant can resemble the body of a human, with arms, legs, and a distinct trunk. A cultivated root will be carrot-like in appearance, whereas the wild organic roots all look different.

NICKNAMES

Ginseng is referred to by a few different names, some of them inspired by the unusual shape of the root. The name Ginseng itself is said to be a corruption of the Chinese Jen shen, which approximately translates to man-root. North Carolina mountain folks refer to the plant as Sang.

TERRITORY

Ginseng grows wild from Quebec to Georgia, and due west of the Mississippi River out to Iowa.

The plant has had periods of domestication. (In 1908, an author named Sterling in New York State convinced many to become Ginseng farmers by creating raised, latticed Ginseng beds.) Panax Ginseng in the Orient for instance, is sometimes grown in huts, with raised beds rather than in forest conditions.

How different parts of Ginseng plants are used:

1. Berry - Edible and used for lowering of blood sugar; contains seed which is used to produce new Ginseng plants.
2. Leaf - Used for medicinal tea and beverages.
3. Root - Used for different types of medicine, i.e., tinctures, capsules, powder, or tea.

HABITAT

Ginseng grows best in forest environments with well-drained, porous soils with topsoil that is rich in humus formed from hardwood leaf litter.

A northern or northeastern exposure is best for growing Ginseng. This reduces the summer heat and features the necessary shade which Ginseng requires. The site should also be sloping to ensure adequate soil drainage, although this effect can also be artificially accomplished by creating a 3-4 foot raised bed on the north side of a structure that provides shade.



The presence of certain plants growing on a north-facing slope can give a good indication as to whether or not Ginseng will also grow there. Look for Rattlesnake fern, Maidenhair fern, Solomon's seal, Blue Cohosh or Black Cohosh, Wild Ginger, Trillium, Jack-in-the-Pulpit, Spicebush, Dutchman's Pipe, and Bloodroot, as they tend to live in the same types of environment in which Ginseng can flourish.

TREES AND GINSENG

Ginseng requires a hardwood shaded area. The shade should be a canopy overhead and between 70 – 80% shade.

Oak forests can cause slight problems because the leaves are thick and tough. The young Ginseng plants have a difficult time growing through this leaf litter in the spring. Trees such as Oak, Cherry, Black Walnut, or Hickory can pose a problem for the delicate Ginseng stem, because of their abundant seed/nut production.

The ideal growing site is a mixed hardwood forest cove with a lot of Tulip Poplar (*Liriodendron tulipifera*) and Sugar Maple (*Acer saccharinum*) and Red Maple (*Acer rubrum*). These give off the calcium which Ginseng likes.

Soils should be slightly acidic with relatively high calcium levels, with a pH of 5.5 - 6.0.

FIELD CULTIVATION

The most potent, highest quality Ginseng is grown organically, in wild or wild simulated conditions, for at least 6.5 years.

Large-scale production with overhead shade is expensive to establish, costing \$10,000+ an acre and using chemical fertilizers. It often involves spraying the farmed Ginseng in order to offset its long maturation period and susceptibility to five different fungi in North Carolina. **By spraying chemicals to prevent fungi that are residually present in the soil, the fungicides will be concentrated in the roots of the final product.**

Prices are \$18-24 per lb. for field cultivated (sprayed, 3-4 years old) Ginseng root, such as shade-grown Wisconsin or western Canadian roots. Field cultivation is not suggested.

Commercial woods-grown Ginseng, using monocultural practices and spraying, commands about \$150-200 per pound.

Cultivated Ginseng, grown for three or four years, does not develop the wild look nor strong tonic benefits of its potent counterpart. Wild Ginseng has many concentric rings on the outside, and a knarled look, because of industry standards. Cultivated Ginseng has a fat, smooth taper with few rings.

Critical Statistics and Comparisons

- From seed to germination: 18 months.
- Seeds are produced in the third year.
- Commercial Ginseng harvested after 3-4 years of growing.
- Full medicinal properties of Ginseng reached at 6.5 years
- 5 year rule: No Ginseng exported out of state under five years.

North Carolina Ginseng and Goldenseal Company's standard: Minimum 7-10 years.

Oriental buyers and users of Ginseng believe the longer and slower that Ginseng grows, the more medicinal qualities are contained in the root.

Research at West Virginia University shows that full medicinal qualities begin only after six and a half years.

The most potent, highest quality Ginseng is grown organically, from wild or wild-simulated conditions. Cultivated Ginseng, on the other hand, produces a lower quality potency, plus the unwanted, added fungicidal residue.

SOIL

Ginseng requires a well-drained, 100% composted, soil mixture of 75% fungal matter (bark, leaves, and decaying tree stumps) and 25% bacterial matter (manures).

This will give the look and consistency of black coffee grounds. Fungal matter and bacterial matter added together provide an excellent growing medium for Ginseng. The pH of the soil should be around 5.5 to 6.0 for American Ginseng.

Conifer-area soils, such as places where Pines, Rhododendrons, Mountain Hemlocks, and Mountain Laurel grow, create too much acidity and are therefore not recommended; nor are highly sandy soils.

PREPARING THE SITE

Bed preparation can be elaborate or simple. We use a no-till method, as per the permaculture method, for our plantings. Wild-simulated Ginseng is planted by leaving the surrounding ground undisturbed, maintaining its community of companion plants, removing some underbrush only when they are immediately around the Ginseng plant.

By taking large, downed lumber, and putting it behind live trees, you can create a terraced bed. The width of terraced beds should be about four feet wide, to facilitate an easy reach of plants and weeds from all sides; similarly, leave at least two-foot walkways around the area to allow room to work the plants.

PLANTING

Ginseng is planted from seeds in the fall of the year; October through the beginning of November are the best months to plant. Ginseng is planted from potted plants in the spring. The density of plants in an area is also very important. There needs to be enough space between plants in order to ensure good airflow, reduce competition for moisture and nutrients, and prevent the several different types of fungal diseases which can afflict the plants.

Initially, roots cost more than seeds; however, established roots, being older, will produce seeds earlier than the seed stock will, and so are desirable for quicker seed production. When growing from seed, make sure you purchase stratified seeds or stratify them yourself.

For best planting success, consider planting seed in the third quarter of the moon, in the signs of Cancer, Scorpio, or Pisces. If you cannot plant during one of these signs, the next best signs to use are Taurus or Capricorn.

There is a need for seed production in this country. Ordering seeds in the fall can be tricky because most people are sold out.

PLANTING SEEDS IN A SEED BED

Soak your stratified seeds for 20 – 30 minutes just before planting. Any that float will not germinate.

Create a seed bed. When planning a bed, make sure there is sufficient space to allow for a walkway to access the plants. Build a raised bed with untreated wood, either secured by stakes in the front, or placed behind live trees. Once the raised, lumbered bed has been created it should be the size of a double-hung window screen.

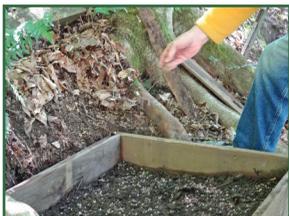
Then create two 'sandwiches': The first layer is of new soil with the aforementioned 75-25% fungal-bacteria ratio, at least 2 1/2 inches deep. See our YouTube channel PlantFriends for videos: [youtube.com/watch?v=BJA1KmrVE3Q](https://www.youtube.com/watch?v=BJA1KmrVE3Q) (the Ginseng Seed Bed

episode) and [youtube.com/watch?v=oCSS9ByVGaA](https://www.youtube.com/watch?v=oCSS9ByVGaA) (the 'April 17th class' episode). Both videos talk about this process.

Seeds should never be allowed to dry out or they will not germinate.

Seeds can either be broadcast on top, making sure no seeds touch each other (for fungal protection), or can be planted 2 inches apart in rows about 4 inches apart.

Then completely cover the seeds with another layer of soil. There should be approximately 1/4 – 1/2 inch of soil on top of the seeds.



The second 'sandwich' or mulch layer will consist of leaves and a framed window screen with rocks on the four corners to protect against mice, voles, chipmunks, and rats, and a final covering of leaves so that you do not see the screen.

It is highly important to remove the screen in March, replace the leaves with straw to allow the young seedlings to poke through easily without developing leggy stems. Plants will need to be thinned in the spring.

This is a method I transitioned into, and it requires replanting in the spring, though some folks feel it should be left for at least two years. Other mountain farmers have used different methods and mediums in successfully growing starts.

Usually seeds germinate with an 83-86% success rate, though recent plantings here at the NC Ginseng & Goldenseal Co. have shown even better yields, well into the 90th percentile.

Do not wait longer than two years to transplant the roots in a seed bed.

PLANTING THE ROOTS

Never plant in flat places because water will gather in those areas and promote root rot and other diseases.

When planting beds in the forest, you are encouraged to create terraces. This is accomplished by putting dead wood, boards, or branches behind live wood (two small trees, for instance), and filling the space behind the logs with leaves and then amended soil. This will prevent heavy runoff and provide a workable area on an extreme slope.

Soak roots for ten minutes before planting. Roots should be planted 9 inches apart in all directions and placed 1 to 2 inches deep, with the bud facing upwards. Be careful not to damage the bud, as this is the growing point.

As with Ginseng seeds, keep them moist, because dry roots will die. Mulch immediately after planting. If weather is dry, water the mulch.

MULCH MULCH MULCH!

Mulching is a very important step, and serves two main purposes. First, it provides protection for the bed. Moisture will be retained for a long period of time, and the temperature of the soil will remain cool.

Second, since mulch is constantly decaying, it leaves a natural fertilizer in the soil, building the growing medium. Mulch should be applied to beds immediately after planting.

If you use oak leaves as mulch, make sure to shred the leaves as much as you can. Oak leaves are very tough and it is difficult for young plants to grow through them.

POTENTIAL PESTS

The biggest threat to Ginseng is humans. The plant is overharvested, losing habitat, and is rarely re-planted. Unprincipled harvesters take plants that are too young and do not replant seeds. (CITES 1977 international treaty/US Fish and Wildlife service has an export ban on plants less than 5 years old.)

In addition to the export ban and the low medicinal value of young plants, taking young plants does not allow them to throw seed/repopulate. If you are harvesting mature plants, be sure to replant seeds at least three feet from the harvested plants, or, bring back seeds to stratify.

Fencing or individual caging may be required, as deer eat the plants, wild turkeys eat the seeds, and livestock can trample an area. During the fall when seeds are setting,



squirrels can also be a problem: They can rapidly destroy your seed crop! Look for destroyed seed heads and seed hulls. Voles will use mole holes for runways and eat portions of the Ginseng roots, and sometimes mice consider mulch an ideal home. Use mouse bait and check your patches frequently. The Agricultural Extension recommends live traps. Call your County Extension Agent if you are having pest problems.

Slugs can be detrimental to Ginseng as well. They like to work under the mulch and multiply rapidly in a short time. Check under the mulch for small nests of white gelatin-like egg masses. You can also see the slugs in early evening. A few slugs under the mulch in the fall will multiply and completely wipe out a garden by spring. Diatomaceous earth, put out after each rain, can be very effective against slugs. Insects cause only minor damage to Ginseng.

Last but not least, plant diseases caused by fungi can be a real threat to Ginseng production. Prevention has much to do with site location and proper soil drainage. New studies at Eagle Feather Organic Farm (SARE grant) indicate that aerosol sprays made from either Horsetail (*Equisetum arvense*) or Neem (*Melia azadirachta*) help with fungal problems. Also, Goldenseal (*Hydrastis canadensis*) washes of the soil can help with soil fungus problems.

Horsetail, an ancient plant, has more silica than any other plant on the planet! It is this high silica content which can stop the fungus. You can use a Horsetail spray in the spring, after each rain, to combat the airborne fungi, and a Goldenseal spray in the spring and fall to help clean fungi from the soil.

SEED COLLECTION AND STORAGE

Under no condition should the seed ever be allowed to dry out. If it does, it will not germinate.

Ginseng seeds do not sprout until the second spring after they are harvested. Ginseng plants do not produce seeds until at least their third growing season.

After the berries turn red, around mid-August, they can be harvested. Once picked, the berries should be de-pulped. The pulp can be rinsed away and the seeds washed. Once that is done, you are ready to stratify the seeds.

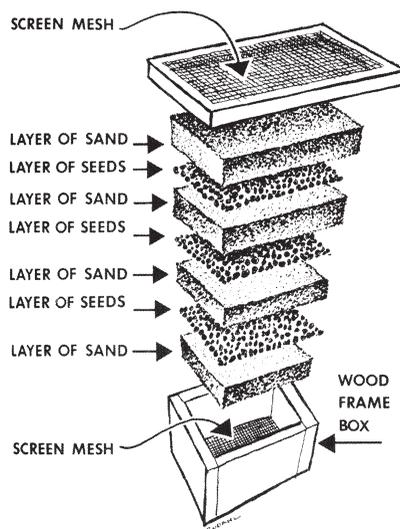
Germination requires exposure to a cold/warm/cold sequence of temperature changes. Stratification is from one fall to the next fall.

The most time-honored common method of stratifying seeds is to mix the seeds with fine sand in a wooden box or a can.

Using twice the amount of sand as seed by volume, the sand and seeds should be placed in the box in thin alternating layers, beginning and ending with sand.

Boxes are usually no more than one foot deep, with

holes put in at the top and bottom. The bottom of the box is covered with wire or screen mesh to allow for good drainage.



Stratification of seeds. Drawing from *Growing & Marketing Ginseng, Goldenseal & Other Woodland Medicinals*.

Select a burial site for the box where Ginseng would probably grow well. Dig a hole a few inches deeper than the depth of the box, and cover it with an additional two inches of sand. In September or October of the following year, dig up the box, separate the seeds from the sand, and then plant the seeds.

The modern method of stratification is placing seeds in the refrigerator (40 degrees F in the veggie bin), until the spring. The seeds need to be looked at throughout the year for mold. If mold appears, use a 10% bleach solution to wash the seeds.

HARVESTING

Roots are harvested in the fall after the leaves die. In North Carolina, it is legal to dig only after September 1st.

Ginseng grown wild from seed requires six and a half years to begin obtaining its real medicinal value.

Gather Ginseng in the fall when the leaves turn golden yellow. Take only the larger, older plants, which have bigger roots. The older the roots, the more it will usually weigh, thus the higher the price! (When grown commercially, as in Wisconsin, Ginseng is considered ready to harvest when the plants are between three and four years old.) With practice, one can estimate the age of Ginseng by counting the number of scars from the leafstalks of the plant.

The first year, it has only three leaflets, and more or less resembles a wild strawberry plant. As Ginseng ages, it will develop a main stem, two leaves, and perhaps have a flower stem between them. By the third or fourth year, the plant develops into a three-pronged plant and starts producing berries.

In its teenage years of growth, the plant develops its fourth leaf-prong and generally produces a good crop of berries each year after that. The root develops

Roots should only be dug if you are sure they are at least five years old. Morally you should not dig a root unless it is seven years old.

annual stem scars and thus the age of a plant can be determined by counting the scars. Four or five pronged plants can be twenty years old or older. Dig the plants only after the berries have dropped. If the plant has not produced any berries, do not dig it.

CLEANING THE ROOTS

First soak the roots in a bucket of water for a couple of hours. Clean roots thoroughly, washing by hand. Put your freshly dug plant on a pile of gravel and spray with a pressure hose. Get your roots as clean as possible. Cleanliness of the roots affects their market value. However, the skin of Ginseng contains most of the minerals. Do not use a toothbrush to get off the dirt.

DRYING THE ROOTS

After washing the roots, place on paper towels in cardboard flats, or place the roots in a single layer on a tray with a screen bottom (old window screens work well). Air dry them under controlled conditions. One of the best places to dry the roots is behind a wood stove. Temperatures should range from 70° – 90° F. Maintaining a 90° F temperature is best but not necessary.

Do not place roots in the sun or allow the roots to touch each other. Turn the roots over every two or three days. Keep dried roots in a location protected from excessive heat or cold. If the roots dry too fast in a dehydrator or the sun, then the necks and the rootlets will fall off.

Allow some air flow to prevent mold. Dehumidifiers or ventilation fans can be used to remove moisture from a drying room. Roots are sufficiently dry when they are rock hard and snap when broken. Natural drying will require six to eight weeks minimum. Store roots in a cool and dry environment.

Do not place roots in plastic or airtight containers if they are not completely dry because mildew and mold will develop on the roots. If this happens, hand scrub the roots lightly with water and place in the sun to dry or use a hair dryer.

Contact Us

The North Carolina Ginseng and Goldenseal Company will buy your organically grown Goldenseal and Ginseng roots, as well as other organically grown medicinal plants.

We pay top dollar at the current market price for organically grown Ginseng. Please call us at 828-649-3536 for pricing.

Call, write, or E-mail us for our small farms brochure containing information about purchasing and planting Ginseng, Goldenseal, and other medicinal seeds and plants.

North Carolina Ginseng and Goldenseal Company, located at Eagle Feather Organic Farm, is a state-licensed Ginseng dealer and a propagator of Goldenseal. It was formed in 1993, and is located in Madison County, North Carolina.

Our company has active reseeding programs for Ginseng and Goldenseal, both “companion” plants often found in the same growing area. We also help others with site visits, farm tours, and planting programs.

We will assist individuals who come into any of our programs with growing information.

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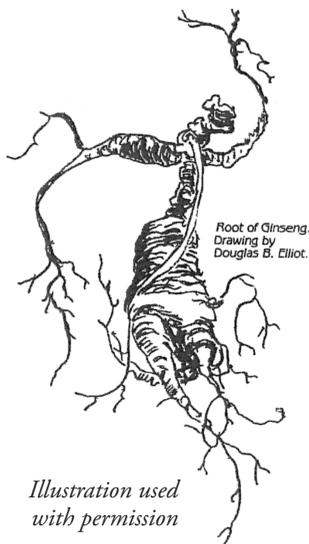


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North Carolina Ginseng and Goldenseal Company is dedicated to the preservation and propagation of Ginseng and Goldenseal in our natural environment. If you would like to participate in a plant rescue, as part of ongoing efforts by Eagle Feather Organic Farm and United Plant Savers*, or learn other plant preservation methods, call us.

REFERENCES

(1) *Healthy Healing, An Alternative Healing Reference*, Linda G. Rector-Page, N.D., Ph.D., page 95.

*United Plant Savers is a grass roots, non-profit organization dedicated to saving at-risk native medicinal plants. Visit them online at www.unitedplantsavers.org.

We wish you success in your endeavors.

If you need additional advice or assistance, please call, write, or E-mail us.

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